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Employment

- **Large Hadron Collider Physics Center Distinguished Researcher**. Fermilab. January 2014 – Present
- **Post-Doctoral Associate**. University of Florida. April 2011 – Present
- **Visiting Fellow**. Cornell University. August 2010 – February 2011
- **Graduate Research Assistant**. Cornell University. January 2006 – August 2010
- **Graduate Teaching Assistant**. Cornell University. August 2003 – December 2006

Education

- **M.S., Ph.D. Experimental High Energy Physics**. Cornell University. August 2003 – August 2010. Conferral date: January 31, 2011
- **B.Sc. (Honours) Physics**. University of Delhi, St. Stephen's College. June 2000 – July 2003
- **Indian Certificate of Secondary Examination** & **Indian School Certificate**. June 1988 – March 1998 & June 1998 – June 2000. Don Bosco School Park Circus

Research Experience

- **Associative Memory Track Triggering at CMS.** January 2014 – Current. Leading the software development effort at Fermilab to simulate track-triggering at the Level One of the Super-LHC. Work supervised by Jacobo Konigsberg and performed in collaboration with Sergo Jindariani, Tiehui Liu and Luciano Ristori.
- **Search for di-Higgs resonances at the CMS Experiment.** November 2012 – Current. Leading a blinded, model-independent search for resonances decaying to two Higgs bosons, both decaying to two b quarks. This work builds on my $H \to b\bar{b}$ expertise at the LHC Physics Center (LPC) in Fermilab and is supervised by Jacobo Konigsberg.
- **Feasibility Study for $Z(b\bar{b})H(b\bar{b})$ at CMS.** June – October 2012. Determined the feasibility for an analysis in the $Z(b\bar{b})H(b\bar{b})$ channel for contributing towards the sensitivity of detecting $H \to b\bar{b}$ at CMS. This work was supervised by Jacobo Konigsberg and conducted at the LPC. The results are documented in a CMS Analysis Note in Section [**Publications: PostDoctoral**].

- **Search for the Standard Model Higgs boson decaying to bottom quarks at the CMS Experiment.** April 2011 – May 2012. Developed, maintained and measured efficiencies of $Z(\nu\bar{\nu})H(b\bar{b})$ triggers for 2011 data taking. Developed new $Z(\nu\bar{\nu})H(b\bar{b})$ triggers for the high-luminosity and pileup data taking at the LHC in 2012. This work was supervised by Jacobo Konigsberg and conducted at the LPC. These efforts and their results are documented in a Physics Letters B publication, several CMS Physics Analysis Summaries and Analysis Notes listed in Section [**Publications: PostDoctoral**].
- **First Observation of $D_s^{*+} \to D_s^+ e^+ e^-$ and Measurement of the Branching Fraction Ratio** $B(D_s^{*+} \to D_s^+ e^+ e^-)/B(D_s^{*+} \to D_s^+ \gamma)$. July 2009 – August 2010. Observed with high signal significance the first Dalitz decay in the charm sector, $D_s^{*+} \to D_s^+ e^+ e^-$, using a blind analysis in e^+e^- collision data collected by the CLEO-c detector at the Cornell Electron Storage Ring. The ratio of branching fractions was measured and found to be in good agreement with our theoretical prediction. This work was supervised by Prof. Anders Ryd and published as my Ph.D. dissertation and a Physical Review D article listed in Section [**Publications: Doctoral**].
- **Online Software and Calibrations for the Pixel Detector in CMS**. January 2006 – September 2008. Wrote the initial software framework for the online Data Acquisition (DAQ) system of the CMS pixel detector. Contributed some of the calibration algorithms for this 66 million channel semiconductor detector. Commissioned the pixel detector during various stages of its installation and early runs within CMS. This work was supervised by Prof. Anders Ryd. It was performed at the Laboratory for Elementary Particle Physics at Cornell University, Si-Det at Fermilab, and the Tracker Integration Facility and Interaction Point 5 at CERN. A part of this work is documented in the CMS Detector Note listed in Section [**Publications: Doctoral**].

Awards, Fellowships and Scholarships

- **LPC Distinguished Researcher 2014** awarded by Fermi National Accelerator Laboratory and the LHC Physics Center (LPC)
- **CMS Achievement Award 2008** "for major help in the development of pixel online software" awarded by the Compact Muon Solenoid Collaboration Board
- **Kishore Vaigyanik Protsahan Yojana Fellowship 2001–2003** awarded by the Indian Institute of Science, Bangalore. *KVPY* is funded by the Department of Science and Technology of the Government of India
- **Inlaks 2003 Scholarship** awarded by the Inlaks Foundation
- **Paul Foundation 2003 Scholarship** awarded by The Paul Foundation of the Apeejay Surendra Group

Conference and Workshop Talks

- "$H \to b\bar{b}$ Tools for Supersymmetry Searches". June 13, 2013. Presented at the Electroweak SUSY with Higgs Meeting at the Fermilab LPC

- "$D_s^{*+} \to D_s^+ e^+ e^-$". February 13, 2010. Presented at the American Physical Society April 2010 Meeting at Washington D.C.
- *"The Status and Performance of the CMS Pixel Detector"*. March 12, 2009. Presented at the conference for Technology and Instrumentation in Particle Physics 2009 in Tsukuba, Japan

Selected Publications and Internal Notes

Post-Doctoral

- S. Das, J. Konigsberg, C. Vernieri, A. Rizzi, "Search for di-Higgs resonances decaying to 4 b-jets in pp collisions at 8 TeV", CMS Analysis Note 2013:227
- S. Das, "A $Z(b\bar{b})H(b\bar{b})$ Feasibility Study", CMS Analysis Note 2012: 398
- CMS VHbb Team 2012, "Search for the SM Higgs Boson Produced in Association with W or Z and Decaying to Bottom Quarks", CMS Physics Analysis Summary 2012: 019
- CMS VHbb Team 2012, "Search for the SM Higgs Boson Produced in Association with W or Z and Decaying to Bottom Quarks", CMS Analysis Note 2012:181
- CMS Collaboration 2012, "Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC", Physics Letters B, Volume 716, Issue 1, 17 September 2012, Pages 30 – 61
- CMS Collaboration 2011, "Search for the Standard Model Higgs boson decaying to bottom quarks in pp collisions at $\sqrt{s} = 7$ TeV", Physics Letters B, Volume 710, Issue 2, 4 April 2012, Pages 284 – 306
- CMS VHbb Team 2011, "Search for the Standard Model Higgs Boson decaying to Bottom Quarks", CMS Physics Analysis Summary 2011:031
- CMS VHbbTeam 2011, "Update of Search for SM Higgs Boson in VH(bb) Using 5 /fb of 7 TeV Collision Data", CMS Analysis Note 2011:430
- CMS VHbb Team 2011, "Search for the Standard Model Higgs Boson decaying to Bottom Quarks and Produced in Association with a W or a Z Boson", CMS Physics Analysis Summary 2011:012
- CMS VHbb Team 2011, "Search for the Standard Model Higgs Boson Produced in Association with a W or Z and Decaying to Bottom Quarks", CMS Analysis Note 2011:240
- CMS Higgs Physics Analysis Group,"Trigger strategies for Higgs searches in 2011", CMS Analysis Note AN-11-065

Doctoral

- S. Das, K. Ecklund, B. Kreis, A. Ryd, S. Stroiney, and J. Thompson, "CMS Pixel Online Software and Calibrations", CMS Detector Note 2012:012
- S. Das, "Status and performance of the Compact Muon Solenoid pixel detector", Nucl. Instrum.Meth.A623:147-149,2010, doi:10.1016/j.nima.2010.02.177. CMS Internal Note CR-2009/58
- S. Das, "Observation of the Dalitz Decay of the First Excited State of the Charmed-Strange Meson", Cornell University Ph.D. Dissertation, 2011
- S. Das, A. Ryd, "Search and Observation of the Decay $D_s^{*+} \to D_s^+ e^+ e^-$ and Measurement of the Ratio of Branching Fractions $B(D_s^{*+} \to D_s^+ e^+ e^-)/B(D_s^{*+} \to D_s^+ \gamma)$ at the CLEO-c Experiment", CLEO Internal CBX Note 2010-018
- CMS Collaboration 2010, "CMS Tracking Performance Results from early LHC Operation.", Eur.Phys.J.C70:1165-1192,2010
- CMS Collaboration 2010,"Commissioning and Performance of the CMS Pixel Tracker with Cosmic Ray Muons", JINST 5 T03007, doi:10.1088/1748-0221/5/03/T03007
- CMS Collaboration 2010, "Alignment of the CMS Silicon Tracker during Commissioning with Cosmic Rays", JINST 5 T03009, doi:10.1088/1748-0221/5/03/T03009

Undergraduate

- S. Das et al., "Ratchet for energy transport between identical reservoirs", Phys. Rev. E 66, 050103(R) (2002), doi:10.1103/PhysRevE.66.050103

Teaching Experience

- Facilitator for the CMS Data Analysis School 2014. Taught Ph.D. students to conduct trigger studies and search for Higgs decaying to bottom quarks at CMS
- Teaching Assistantship at Cornell University
  - Heat and Electromagnetism. Fall 2003. With Prof. Veit Elser
  - Heat and Electromagnetism. Spring 2003. With Prof. Andre LeClair
  - Heat and Electromagnetism. Summer 2003. With Prof. Richard Wheeler
  - Classical Mechanics. Fall 2004. With Prof. Philip Krasicky
  - Waves, Optics and Particles. Spring 2004. With Prof. Henry Tye
  - General Physics. Summer 2004. With Prof. Alan Giambattista
  - Heat and Electromagnetism. Fall 2005. With Prof. Lawrence Gibbons

Outreach

- 2009 – 2012. Delivered several outreach talks on the Large Hadron Collider and particle physics to several schools and undergraduate colleges in India at their requests. The presentation is now one of the official outreach presentations on the CMS website. It is also available on my outreach page.
- Contributed an article to the CMS Times describing our effort with the "Pixels in a Box" at Point 5.
- Contributed an article in the CMS Times describing my experience of working as a graduate student at CERN.